

Impact of Demonetisation on Indian Stock Market: with special reference to NSE

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ABSTRACT

Demonetization is an act of seizing a currency unit of its status as legal tender. Demonetization is necessary whenever there is a need to change national currency. The government claimed that the action would "curtail the shadow economy and crack down on the use of illicit and counterfeit cash to fund illegal activity and terrorism". The Objectives of the study were (a) to measure the returns of the NIFTY 50 stocks, pre and post demonetisation, using BETA(b) to find the expected returns of the selected stocks pre and post demonetisation, using ANOVA model and (c) to study the impact of Demonetization on stock prices of NIFTY 50. This study focuses on impact of demonetization on stock prices of 15 selected sectors, Automobiles, Banking, Consumer Durables, Telecommunication and Real Estate. 15 companies in each sector were considered for this study. The closing prices of stocks for last 1 year were used to find the returns, starting from 8th October 2015 to 8th 2017 which consists of data of 30 days before demonetization and 30 days after demonetization. Realised return, NSE companies returns, NIFTY 50 returns has been carried out in the study. Using ANOVA on the BETA the three windows, it was concluded that demonetisation had no impact on stock returns during the study period.

1. Introduction

Demonetization is an act of seizing a currency unit of its status as legal tender. Demonetization is necessary whenever there is a need to change national currency. The highest demonetization note printed by the Reserve Bank of India, Rs 10,000 note was demonetized in January 1946 and again in January 1978. On 8 November 2016, the Government of India announced the demonetisation of all ₹ 500 and ₹ 1,000 banknotes. Around 97% of demonetized amount has been deposited into banks i.e. Rs14.97 trillion (\$220 billion) out of Rs15.4 trillion as on Dec 30, 2016. The government claimed that the action would "curtail the shadow economy and crack down on the use of illicit and counterfeit cash to fund illegal activity and terrorism". The sudden nature of the announcement and the prolonged cash shortages in the weeks that followed created significant disruption throughout the economy, threatening economic output. A resultant impact on stock market was also well expected.

Demonetization leads to a situation where the country would suddenly feel short of the money that it needed to enable the transactions. This leads to decrease in prices of goods and services. Until money comes into circulation the purchasing power of people would negatively impact the prices in various industries, it could be real estate, Automobiles, steel, cement, etc. which in turn affect the prices of stocks negatively. The sectors affected by demonetization are NIFTY 50 companies.

Demonetization in India and President Election in US affected stock market, where market indices dropped to six months low in the week following the announcement of demonetization. BSE crashed around 1689 points and NIFTY over 541 points. Hence there is a need to understand how much

the demonetization has affected the stock prices and to analyse the stock price movement pre and post demonetization.

2. Objectives of the study

1. To study the NSE indices -30 and +30 days announcement date of demonetisation.
2. To analyse the impact of demonetisation on NSE indices.
3. To find suitable solution to the future development in stock market.

3. Scope of the study

This study focuses on impact of demonetization on stock prices of selected companies and nifty 50 indices. nifty top 15 companies and nifty 50 in each sector are considered for this study for which the data is collected from National stock exchange (NSE). The closing prices of stocks for last 30 days were used to find the returns.

4. Research Design

This study is Descriptive in nature. BETA and ANOVA used in data collection, to select relevant industries.

5. Sources of data

Secondary data of stock prices from NSE is taken. To examine the impact of demonetisation news Sources like articles, journals, newspapers etc. are referred.

6. Period of data

In order to analyse the impact of demonetization on stock market, 1 year data has been collected starting from 7th September 2015 to 8th march 2017 which consists data of 1

months before demonetization and 1 months after demonetization. For this NSE NIFTY 50 which in 15 companies.

7. Literature Review

Rajanish Kumar (2017) examined the effect of demonetization on stocks in terms of EPS. The author has compared the EPS of companies before and after demonetization and estimated the EPS for next quarter i.e. January to March to analyse the long term impact of demonetization and has given an opinion that there is no negative impact of demonetisation in the long term. **Kailash Bathija and Krishna Eluri (2017)** analysed the impact of demonetization on stock market. The main reason behind this move was to curb black money and stop terrorism funding. They have found out that the share prices fell around 6 % on 9th November as a combined effect of demonetization and US Presidency election. In November, foreign investors sold around \$3 billion value stocks. According to the authors, "this impact is for short term, BSE Sensex would rise to 26560 by the end of the month of December". They have also predicted that it would reach 28500 by mid of 2017 and 29600 by the end of 2017 and NSE nifty would rise to 8775 points. **Narendra Nathan (2017)** explained that demonetization and US presidential election affected Indian stock market. The day after these changes the BSE opened with a loss of 1300 points and recovered slowly after a week. This move created opportunity to buy value stocks which give higher returns in future. It means that the impact is temporary or for short period and stock market would recover slowly. **Manas Chakravarty (2017)** reports that investor feels that the impact of demonetisation on stock market is temporary as lower interest may offset adverse effects. Not only this move by central government has affected the market, along with this the US presidency election has also affected the market. The rise in the US bond yield has led to flow of money from market like India and other growing market.

8. Methods and tools for analysis

BETA MODEL

A beta of less than 1 means that the security is theoretically less volatile than the market.

A beta of greater than 1 indicates that the security s price is theoretically more volatile than the market.

The degree to which different portfolios are affected by these systematic risk as compared to the effect on the market as whole , is different and is measured by beta

Methodology ; formula

$$\beta_a = \text{cov} (r_a, r_p) / \text{var} (r_p)$$

r_a measures the rate of return of the stock

r_p measures the rate of the portfolio

cov(r_a, r_p) is the covariance between the rates of returns

Beta value measure the formula

$$\text{cov}(x,y) = (1 / (n-1))$$

NSE selected of companies : BETA ratio result

Demonetization period impact of the NSE to selected of nifty 50 companies. 15 companies with collected the data to before 30 days and after 30 difference of returns and indices. Impact of demonetization on NSE indices. Beta value result

Sr. No	NSE listed companies	Beta value 8.10.16 to 7.11.16	Beta value 8.11.16 to 7.12.16
1	Reliance industries ltd.	1.392	0.386
2	TATA Consultancy service ltd.	0.672	0.805
3	Hindustan Unilever ltd.	-0.035	0.206
4	Maruti Suzuki India ltd.	0.333	1.801
5	Infosys ltd.	0.144	0.706
6	State bank of India	1.670	0.937
7	Kotak Mahindra bank ltd	0.402	0.733
8	ICICI bank ltd	1.946	1.302
9	Coal India ltd	0.712	1.095
10	Indian oil corporation	-8.127	1.536
11	Bharatiairtel ltd	0.885	0.722
12	Axis bank ltd	1.530	1.069
13	NTPC ltd	0.154	0.866
14	Tech Mahindra ltd	1.667	1.508
15	Tata steel ltd	1.623	2.173

To study the impact of Demonetization on stock prices of nifty 50 using

ANOVA

Demonetization period impact of NSE indices within one year effect level of the up and down on share market. NIFTY 50 indices data collection of the period 8 Oct 2015 to 7 Nov 2016 previous year and 8 Oct 2016 to 7 Non 2017 after the year of data. Data returns of result on Anova single factor method used on result of problems.

Column1		Column2	
Mean	7997.563717	Mean	9170.232522
Standard Error	33.57618514	Standard Error	44.44092124
Median	7885.8	Median	9275.225
Mode	#N/A	Mode	9173.75
Standard Deviation	504.7607425	Standard Deviation	668.0935404
Sample Variance	254783.4071	Sample Variance	446348.9787
Kurtosis	-0.962095691	Kurtosis	-1.169794165

Skewness	0.108535007	Skewness	-0.364676169
Range	1981.9	Range	2244.85
Minimum	6970.6	Minimum	7908.25
Maximum	8952.5	Maximum	10153.1
Sum	1807449.4	Sum	2072472.55
Count	226	Count	226

ANOVA single factor model

H0: $\mu_1 = \mu_2 = \mu_3$
 H1: Mean returns are not equal

Sum of squares between-groups examines the differences among the group means by calculating the variation of each mean (\bar{y}_j) around the grand mean (\bar{y}). $SS_{between} = \sum (n_j \bar{y}_j - \bar{y})^2$

nis the number of observations in each group (cell, or level of factor A).

Sum of squares within-groups examines error variation or variation of individual scores around each group mean. This is variation in the scores that is not due to the treatment (or independent variable). $SS_{within} = \sum (y_{ij} - \bar{y}_j)^2$

The total sum of squares can be computed by adding the SSA and the SSs/A, but can also be computed the same way we would for computing the numerator in the formula for sample

variance—by simply subtracting each score from the grand mean, squaring, and then summing across all cases.

Degrees of Freedom

Each SS has a different degrees of freedom associated with it. $df_{between} = k - 1$, $df_{within} = N - k$, and $df_{total} = N - 1$. Here, k equals the number of groups (or “levels” of the independent variable), n is the number of observations in each group (assuming they are equal), and N is the total number of observations in the study (which is equal to a multiplied by n for equal group size). $df_{total} = N - 1$

Mean Squares and F

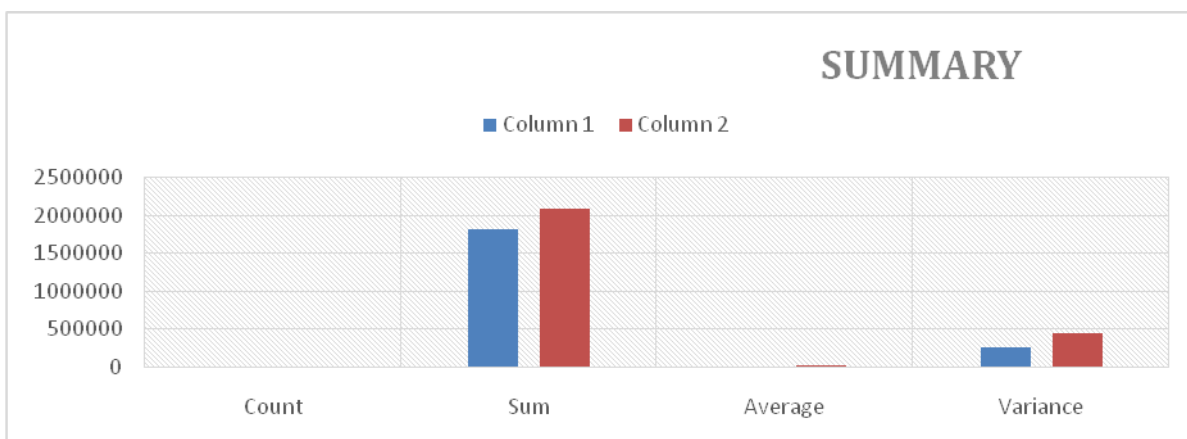
The mean squares are computed by dividing the SS by the df. This is akin to the computation of the sample variance which divides the sum of squares by degrees of freedom. In fact, $MS_{between} = SS_{between} / df_{between}$. The F ratio is then computed by creating a ratio of the between-groups variance to the within-groups variance: $F = MS_{between} / MS_{within}$

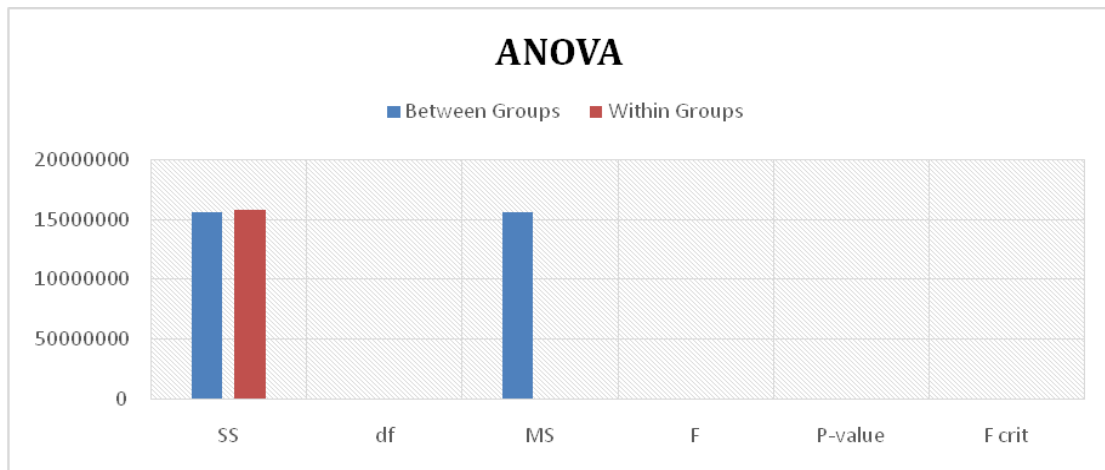
SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	226	1807449.4	7997.563717	254783.4071
Column 2	226	2072472.55	9170.232522	446348.9787

ANOVA

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	155392190.3	1	155392190.3	443.2606266	5.36E-69	3.862206245
Within Groups	157754786.8	450	350566.1929			
Total	313146977.2	451				





9. Conclusion

The impact on stock market is temporary i.e. the prices of stocks were fluctuating in the week of announcement of demonetization. Speculators who buy at lower prices with the expectations of selling them at higher prices in future had expected that this move would drastically affect the market and

the impact would be long period but this study proved that demonetization had no impact on stock market and NSE companies. The current study is done to analyses whether the demonetization has affected the stock market or not. As proved by this study the demonetization had no impact on the stock prices.

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